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(54) Title: MULTI-CHANNEL OPTICAL IMAGING

(57) Abstract: The invention features beam splitter arrays that include a first beam splitter that outputs a first beam of optical radiation having a power spectral density including a substantial portion of a white light spectrum from a first output port, and that outputs a second beam of optical radiation having a power spectral density including a substantial portion of a first non-white light spectrum and a substantial portion of a second non-white light spectrum from a second output port, from an input beam received at a first angle of incidence; a second beam splitter, arranged to receive the second beam at a second angle of incidence, that reflects a substantial portion of the second beam having a power spectral density including the first nonwhite light spectrum, and that transmits a substantial portion of the second beam having a power spectral density including the second non-white light spectrum; and a reflector arranged to reflect a substantial portion of the beam transmitted by the second beam splitter. The new arrays can be used in systems and methods for multi-channel optical imaging, e.g., of samples such as biological tissue, both *in vitro* and *in vivo*.